eCoastal: Overview & Status

eCoastal Workshop

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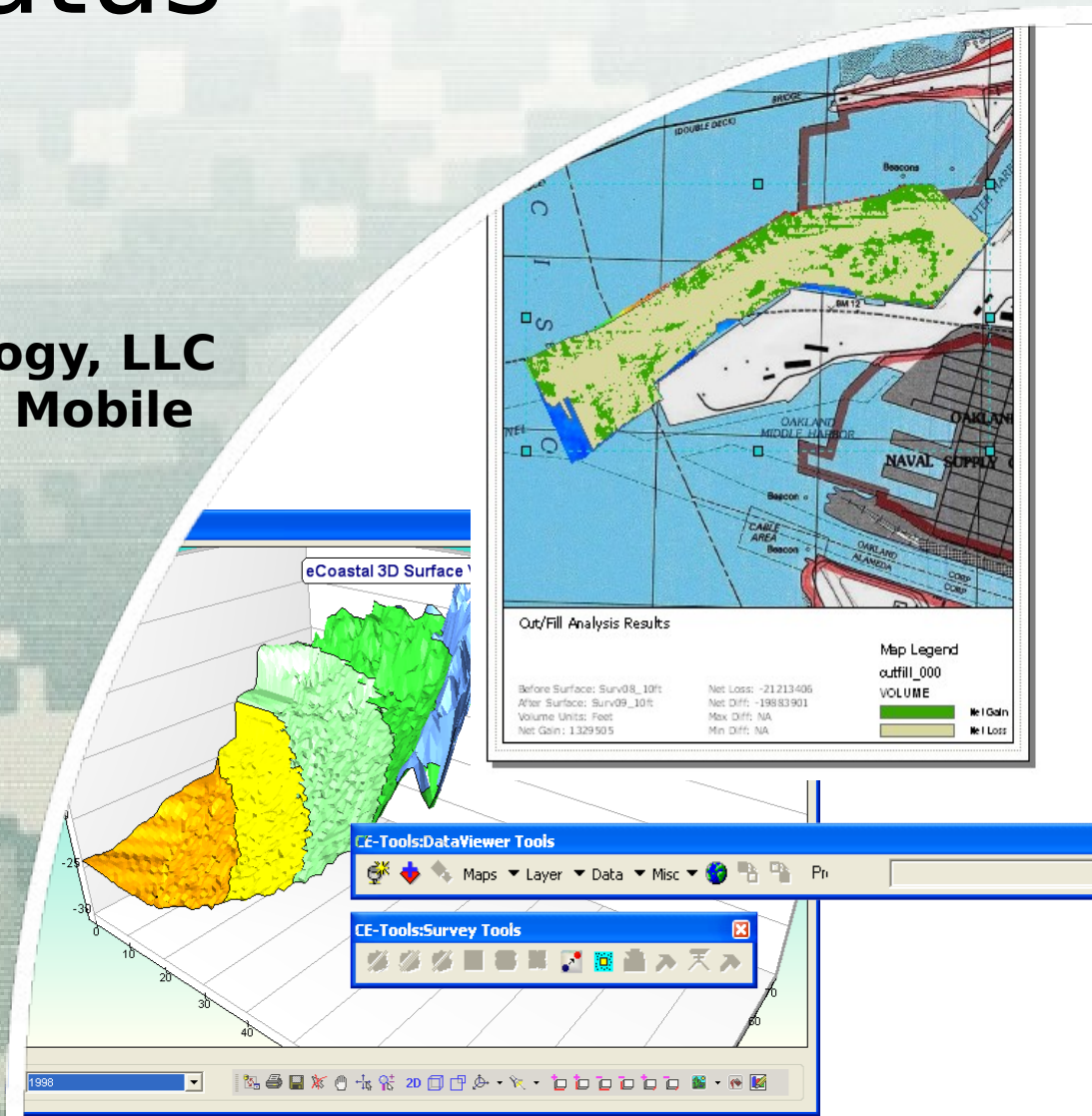

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Agenda

- eCoastal Defined
- eCoastal Databases
  - Building an SDS Compliant Database
  - Populating a Database
    - Authoritative Data
    - Draft Data
  - Accessing an eCoastal Database
    - The Power of Layer Files
  - Importance of Standard Operating Procedures
- The eCoastal ‘Umbrella’

eCoastal Goals

- Easily access coastal datasets for data analysis and viewing in a GIS or mapping platform without regard for individual project boundaries.
- Provide decision makers and/or project engineers all of the tools needed to make educated decisions with coastal datasets.

What some think eCoastal is…

- A GIS or
- A Database or
- An Application or
- A Website or
- The DataPicker Tool or
- The Volume Difference Tool or
- …

What is the eCoastal Program?

- Data Architecture & Applications for the Coastal Environment
  - eCoastal is an **architecture** developed by the U.S. Army Corps of Engineers that addresses spatial data standards, geodatabase structure and custom coastal GIS applications.
  - Series of custom GIS tools and applications to assist with the **data access**, **analysis**, and **storage** of coastal datasets.
  - The eCoastal Program provides a foundation for a data management plan designed to function as an enterprise GIS. It was developed to concentrate on the specific needs of the coastal engineer.

eCoastal is a GIS

- A GIS: A Geographic Information System
  - What is a GIS? A system that captures, stores, analyzes, manages, and presents data that is linked to location.
    - Captures/Stores/Manages: SDSFIE compliant Geodatabase structure, Recommendations for SDSFIE coastal features
    - Analyzes: Survey, SBAS-A, Shoreline Classification, and CoSCA ArcMap Tools, Project Databases (e.g. RSM Project Viewer)
    - Manages: DataPicker Tools, SAMS, EGIS Management Database, Engineer Manual
    - Analyzes/Presents: ArcMap, Online Mapping ArcIMS/ArcGIS Server/Google Earth

What is the ‘eCoastal Database’?

- The eCoastal Program distributes a SDSFIE database filter that provides the structure for coastal specific datasets (SDSFIE 2.6)
  - Common coastal features have been selected and added to the filter.
  - Using the SDSFIE Geodatabase Builder, this filter can be used to generate a compliant design for a database.

What is the ‘eCoastal Database’?

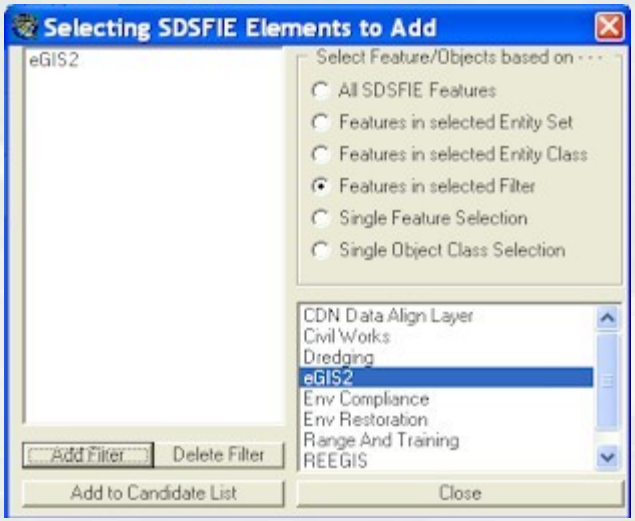
- The goal is for each District to have an enterprise database that houses all GIS data to support the District.
  - For Districts without an EGIS, the eCoastal program provides a foundation (database filter) and lessons learned to build a database.
    - This foundation can grow to eventually serve as the District’s EGIS.

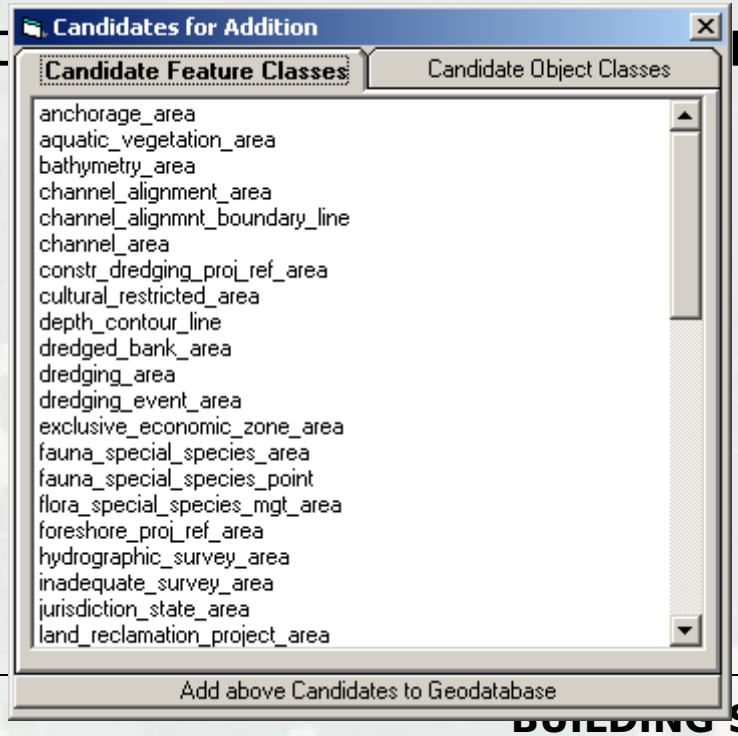
What is the ‘eCoastal Database’?

- For Districts with an existing EGIS, only the initialization and setup is needed for the custom tools for an eCoastal implementation.
  - NOTE: Some eCoastal tools require strict adherence to SDSFIE compliant feature classes in order for them to work properly.
- The eCoastal program does not provide any data for District geodatabases, only structure.

Using the Database Filter

- The eCoastal SDS geodatabase filter will create a blank database. This database will contain all of the feature datasets and classes that represent coastal features, all preformatted with the required attribution of t rd.





ArcCatalog - ArcView - D:\mydocuments_Demonstrations\eGIS\Spatial Server\eGIS_Sample_GDB\gdbtemplate.mdb\landform\sounding_point

File Edit View Go Tools Help

Location: D:\mydocuments_Demonstrations\eGIS\Spatial Server\eGIS_Sample_GDB\gdbtempl

Stylesheet: FGDC ESRI

eCoastal

Container Organization

- gdbtemplate
  - boundary
    - district_area
    - representation_district_area
  - buildings
  - cadastre
  - cultural
  - ecology
  - env_haz_emergencyprep
  - fauna
  - flora
  - geodetic
  - geology
  - hydrography
  - improvement_dredging
  - improvement_erosion
  - improvement_general
  - improvement_machinery
  - improvement_recreation
  - land_status
  - landform
    - bathymetry_area
    - channel_xsection_line
    - depth_contour_line
    - elevation_contour_line
    - elevation_profile_point
    - hydrographic_survey_site
    - physiographic_area
    - sediment_modeling_point
    - sediment_sample_point
    - shoal_area
    - sounding_point
    - spot_elevation_point
    - survey_trackline

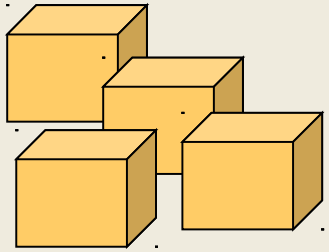
eCoastal

Empty Containers

Contents | Preview | Metadata

grid_value	coord_x	coord_y	coo

District Supplies Data



Record: 0 Show: All Selected Records (of 0)

Preview: Table

Database Content

- The final resting place for authoritative data sets should be the enterprise geodatabase within the application SDS feature.
  - All data of the same theme, should reside in a single feature class.
  - E.g. There will only be one shoreline feature class. This class will hold all shorelines. Attribution of individual features makes record unique.

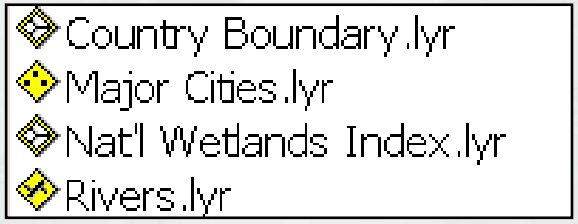
Database Content – Layer Files

- Layer files (*.lyr) can be used (and are the primary data display used by the Data Picker tool) to retain the definition query applied to the attributes.
- Metadata can be applied to the newly created layer file.

Layer Files

A layer is what you see in the ArcMap table of contents. A layer contains:

- the pathname or link to the dataset (local or remote)
- symbology and display information
- feature or row selection information (definition queries)
- Metadata can be attached to a layer file



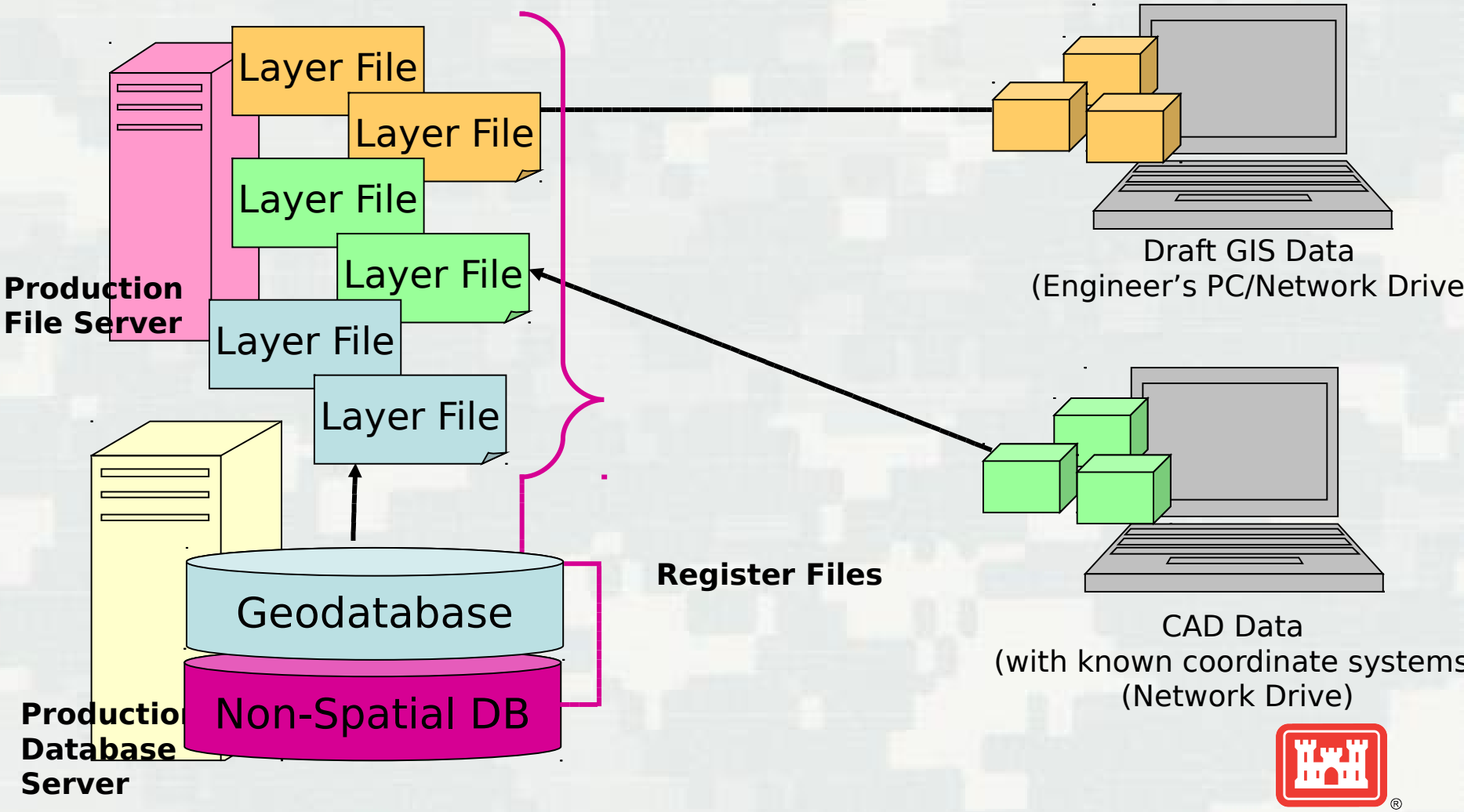
Layer Files

- Layer files hold all of the database connection detail, so the end-user does not need to know “where” the data is stored.
- For the non-GIS user, the layer file simplifies and standardizes the data display for features within a feature class.

Layer Files – Draft Data

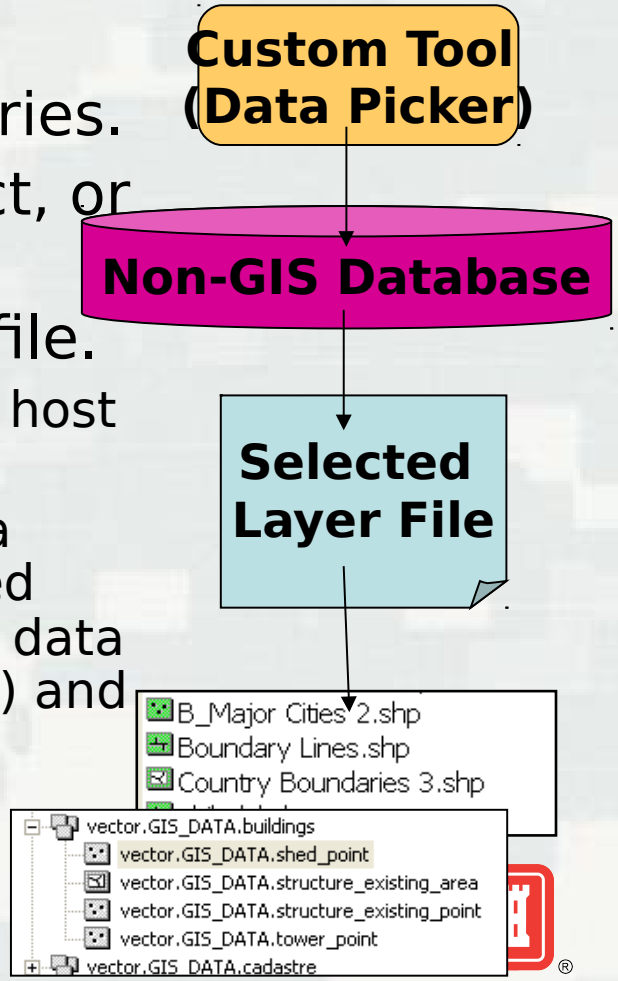
- A goal of the eCoastal Program is to provide easy access to data. This includes “working” or “draft” datasets.
- One technique to easily access draft datasets is to centralize the storage locations for working feature classes or shapefiles.
  - Layer files can be created for the shapefile (fully qualified computer name required in data source) then the layer file can be distributed.
  - This permits the data steward to follow “business as usual”. Data can remain in the defined a location, and all eCoastal users can have read-only access to this dataset, accessible through the Data Picker tool.

Layer File Architecture



End User Access

- Custom ArcMap Desktop Application connects to registered Layer file entries.
- Users can search by keyword, project, or category to locate data.
- Data is retrieved through the Layer file.
  - The Layer file gathers the data from the host location.
  - Layer files can be use to connect to data across Districts. Provided a fully qualified server name or IP address is used in the data source, data can be retrieved (read-only) and displayed on the requestors computer. (Permission to file server is required)
  - **Enterprise GIS!**



End User Access

- Online mapping applications can be created off of generated MXDs or any data stored in the database.
- ‘Flavor’ of online mapping application will be defined by project or user requirements.
- The eCoastal program offers templates, lessons learned, technology transfers, and architecture **designing** and **hosting** internal and external online mapping applications.

Architecture Summary

- Geodatabase Structure with SDSFIE compliancy
- Supporting Database (non-spatial) to power the custom tools (business data)
- Layer files to Standardize Display options for data.
- Custom GIS Tools

Standard Operating Procedures

- An SOP is not a requirement for an eCoastal implementation, however it is STRONGLY recommended.
- This document should guide the path of what happens to data once it enters a District.
  - Encourages proper archiving
  - Ensures consistency
  - Adds a layer of QA/QC
- Assign a person to police the policy!

What's Under the eCoastal Umbrella?

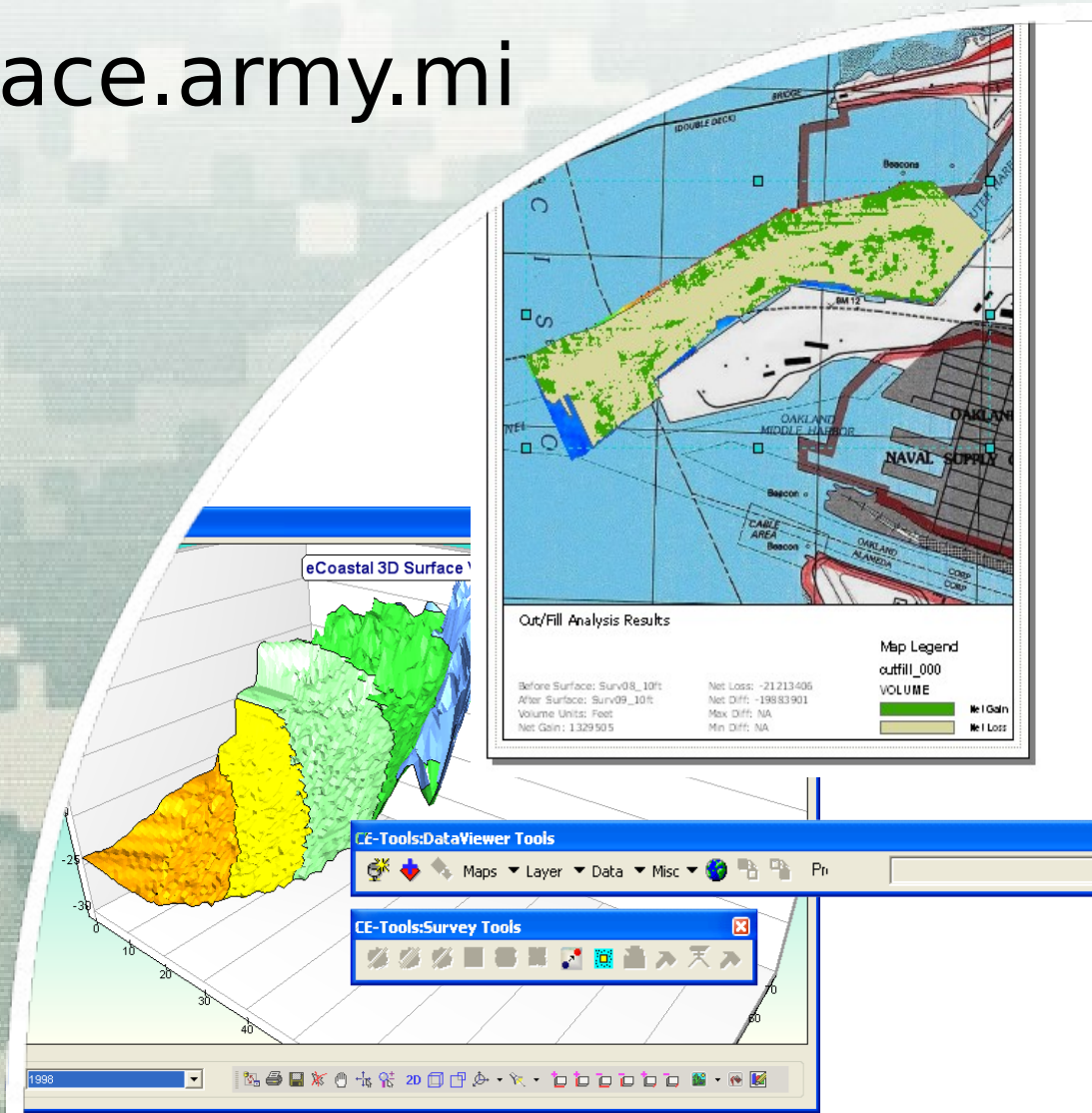
- SDSFIE database filter (version 2.6)
- SDSFIE Adaptations (version 3.0)
- ArcMap Tools: DataViewer, Survey Tools, SAMS, CoSCA, SBAS-A
- Websites:
  - eCoastal Main
  - RSM Database Website
    - Shore Protection Database
    - Navigation Project Database
    - Sediment Needs Application
  - RSM Long Island New Orleans District Sediment Samples Application
  - Threatened & Endangered Species System (TESS)

What's Under the eCoastal Umbrella?

- Web Mapping (guidance on how to build mapping services)
  - OPJ Coastal Mapping Services: WMS & IMS
  - GoMex
- Related Programs/Projects
  - RSM (Regional Sediment Management)
  - LCAST (Louisiana Coastal Area – Science & Technology)
  - GRSMMP (Gulf Regional Sediment Management Master Plan)
  - GoMex (Gulf of Mexico Alliance)
  - NCDB (Navigation & Coastal Databank)
  - …

Questions?

http://eCoastal.usace.army.mil



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